Equipment Decontamination with Sparquat 256
PACFISH/INFISH Biological Opinion Effectiveness Monitoring (PIBO-EM)

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Introduction

- Aquatic nuisance species (ANS) can have deleterious effects on aquatic ecosystems by altering local food webs and habitat structure (Strayer et al. 1999).
- The spread of ANS throughout the Pacific Northwest is likely a combination of natural vectors (e.g., birds) and anthropogenic activities through angling and other water-related recreation. In addition to these potential sources, field biologists associated with fisheries management and research can also represent a significant vector for ANS, particularly where biologists visit numerous streams.
- PACFISH/INFISH Biological Opinion Effectiveness Monitoring (PIBO – EM) is a habitat-based monitoring project with nearly 2500 sample locations on streams throughout the Interior Columbia and Upper Missouri River drainages (Figure 1).
- In response to the significant expansion of ANS in the PIBO-EM study area and elsewhere in the West (Figure 2), PIBO-EM crews initiated decontamination methods for field gear in 2001. With the results from recent research comparing different decontamination methods (Schisler 2008), we began using Sparquat 256 as a decontamination solution for field gear in order to control the spread of ANS through PIBO-EM monitoring crews.
- Here we discuss the relative easy use of Sparquat 256, the equipment needed, and the pros and cons of using Sparquat in aquatic monitoring.

New Zealand mudsnail (*Potamopyrgus antipodarum*)

whirling disease (*Myxobolus cerebralis*)

zebra mussel (*Dreissena polymorpha)*

'rock snot' (*Didymosphenia geminata*)

Methods

Treatment Steps 1,2,3

Step 1:
Remove visible mud/organic debris from equipment with a stiff bristled brush

Step 2:
Create a decontamination solution of Sparquat 256 (4.5 oz Sparquat/1 gallon water)

Step 3:
Soak for at least 10 minutes

Treatment Steps 4 & 5

Step 4:
Pour solution back into carrying container for reuse. Discard when solution no longer produces suds

Step 5:
Discard Sparquat solution down a drain that will run to a wastewater treatment facility (Sparquat 256 MSDS)

When and Where

- Decontaminate gear before leaving each stream site
- Decontaminate gear at least 100 meters from a water source

PIBO Study Area and Distribution of ANS

Figure 1: PIBO EM study area and distribution of sites

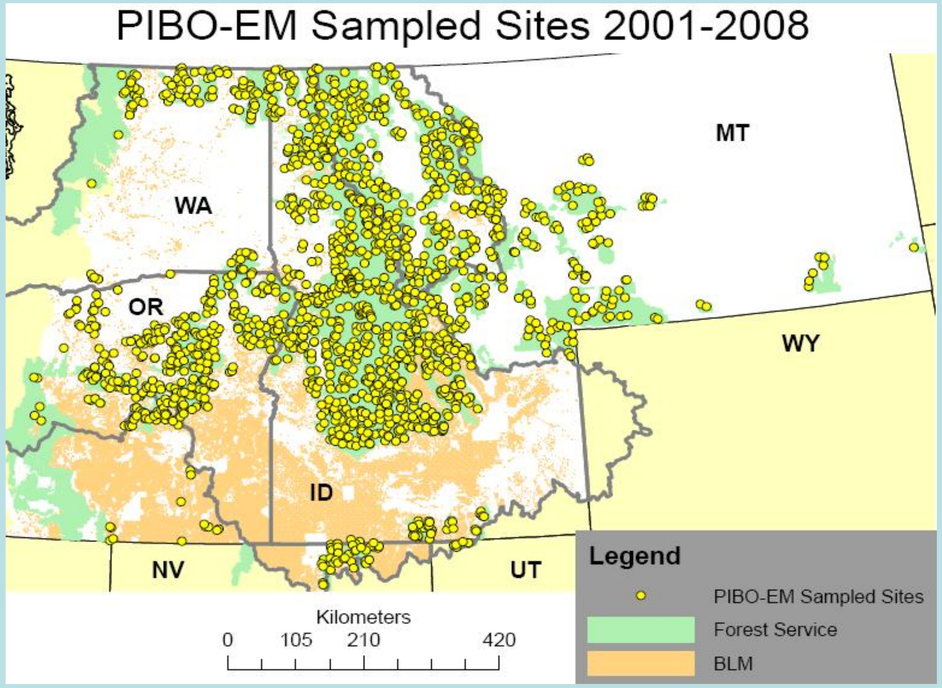
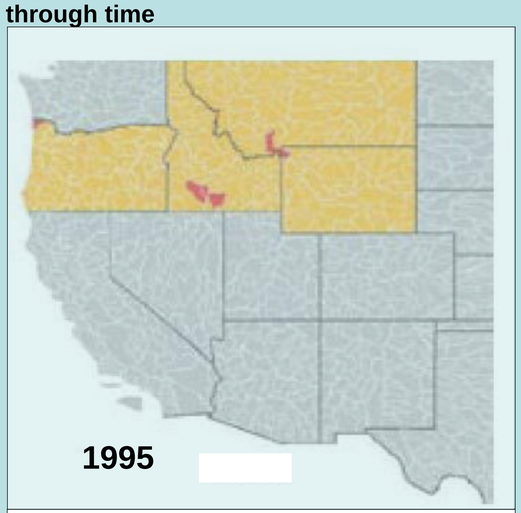
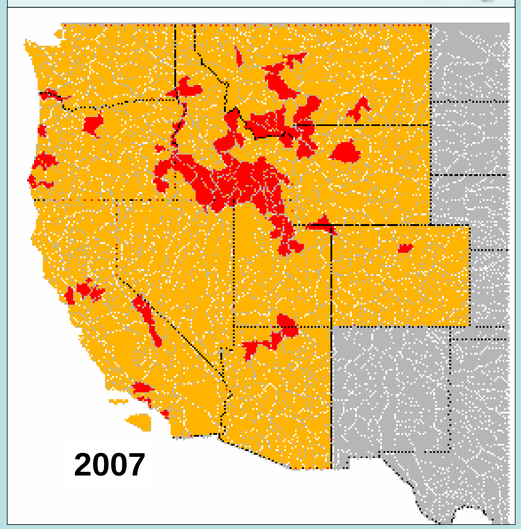


Figure 2: New Zealand mudsnail distribution through time





Equipment

- Large container to hold solution and scrub brush
- Sparquat 256 (we recommend an HDPE bottle for transporting in the field)
- Personal protective equipment including rubber gloves and protective eyewear
- "QUAT Check 1000" Test Strips to check concentration

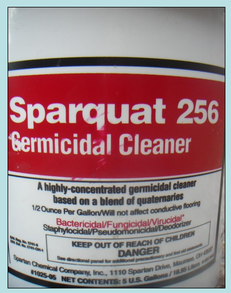
Pros

- Effective against multiple ANS
  - New Zealand mudsnail
  - whirling disease
  - zebra mussel
  - 'rock snot'
- Simple procedure
- Time efficient
- Requires little equipment

Cons

- Sparquat 256 is potentially hazardous. Avoid skin and eye exposure, especially with the undiluted form. (Cook 2008)
- More expensive than boiling or drying
- PIBO EM spends ~$400 a year on Sparquat 256
- Disposal

Product Information



- Quaternary ammonium disinfectant
- Designed for hospital and restaurant use
- 5 gallon bucket = $67 or about $10 per person per field season
- A three person crew uses less than one bucket per season
- Widely distributed across the west
- Can be stored for 2 years without losing effectiveness

References and Acknowledgements

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- New Zealand mudsnail maps from www.esg.montana.edu